CFR 47 FCC PART 15 SUBPART E

TEST REPORT

For

Transmitter & Receiver Kit

MODEL NUMBER: HG-P1A, HG-P1, HG-*(The symbol "*" can be 0-9, A-Z, "-", or blank for the marketing purpose.)**

REPORT NUMBER: E04A26031209F00101

ISSUE DATE: July 21, 2026

FCC ID: 2AQ5R-HGP1

Prepared for

Shenzhen KTC Commercial Display Technology CO.,LTD.
No.4023,Northern Wuhe Road,Bantian Street,Longgang District,Shenzhen City,Guangdong Province,P.R. China

Prepared by

Guangdong Global Testing Technology Co., Ltd.

Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city, Guangdong, People's Republic of China, 523808

This report is based on a single evaluation of the submitted sample(s) of the above mentioned product, it does not imply an assessment of the production of the products. This report shall not be reproduced, except in full, without the written approval of Guangdong Global Testing Technology Co., Ltd.

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	July 21, 2026	Initial Issue	

Summary of Test Results

Test Item	Clause	Limit/Requirement	Result
ON TIME AND DUTY CYCLE	ANSI C63.10-2020, Clause 12.2	None; for reporting purposes only.	Pass
6dB AND 26dB EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH	KDB 789033 D02 v02r01 Section C.1	FCC Part 15.407 (a)/(e), RSS-247 Issue 4, Clause 7.3.5.2 RSS-Gen Clause 6.7	Pass
CONDUCTED OUTPUT POWER	KDB 789033 D02 v02r01 Section E.3.a (Method PM)/KDB 789033 D02 v02r01 Section E.3.b (Method PM) Section E.2.d (Method SA-2)	FCC 15.407 (a) RSS-247 Clause 7.3	Pass
POWER SPECTRAL DENSITY	KDB 789033 D02 v02r01 Section F	FCC 15.407 (a) RSS-247 Clause 7.3	Pass
AC POWER LINE CONDUCTION EMISSION	ANSI C63.10-2020, Clause 6.2	FCC 15.207, RSS-GEN Clause 8.8	Pass
RADIATED EMISSIONS AND BAND EDGE MEASUREMENT	KDB 789033 D02 v02r01 Section G.3, G.4, G.5, and G.6	FCC 15.407 (b) FCC 15.209 FCC 15.205 RSS-247 Clause 7.3 RSS-GEN Clause 8.9	Pass
FREQUENCY STABILITY	ANSI C63.10-2020, Clause 6.8	FCC 15.407 (g)	Pass
DYNAMIC FREQUENCY SELECTION (SLAVE)	KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02	FCC Part 15.407 (h), RSS-247 Issue 4 Clause 7.3.6	N/A
DYNAMIC FREQUENCY SELECTION (MASTER)	KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02	FCC Part 15.407 (h), RSS-247 Issue 4 Clause 7.3.6	N/A
ANTENNA REQUIREMENT	N/A	FCC 47 CFR Part 15.203/ 15.407(a)(1) (2), RSS-Gen Issue 5, Clause 6.8	Pass
ADDITIONAL REQUIREMENTS	N/A	FCC Part 15.407 (c), RSS-247 Issue 4 Clause 7.3.7	Pass

Note:
1. N/A: In this whole report not applicable.
2. For ISED, this report is also performed according to ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024 standards.

*This test report is only published to and used by the applicant, and it is not for evidence purpose in China.
*The measurement result for the sample received is <Pass> according to <CFR 47 FCC PART 15 SUBPART E > when <Accuracy Method> decision rule is applied.

CONTENTS

1. ATTESTATION OF TEST RESULTS 5

2. TEST METHODOLOGY 6

3. FACILITIES AND ACCREDITATION 6

4. CALIBRATION AND UNCERTAINTY 7

4.1. MEASURING INSTRUMENT CALIBRATION 7

4.2. MEASUREMENT UNCERTAINTY 7

5. EQUIPMENT UNDER TEST 8

5.1. DESCRIPTION OF EUT 8

5.2. CHANNEL LIST 8

5.3. MAXIMUM EIRP 9

5.4. THE WORSE CASE POWER SETTING PARAMETER 9

5.5. DESCRIPTION OF AVAILABLE ANTENNAS 10

5.6. SUPPORT UNITS FOR SYSTEM TEST 10

5.7. SETUP DIAGRAM 11

6. MEASURING EQUIPMENT AND SOFTWARE USED 12

7. ANTENNA PORT TEST RESULTS 14

7.1. ON TIME AND DUTY CYCLE 14

7.2. 6dB AND 26dB EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH 15

7.3. CONDUCTED OUTPUT POWER 17

7.4. POWER SPECTRAL DENSITY 19

7.5. FREQUENCY STABILITY 21

7.6. DYNAMIC FREQUENCY SELECTION (SLAVE) 23

7.7. DYNAMIC FREQUENCY SELECTION (MASTER) 27

8. RADIATED TEST RESULTS 31

8.1. RADIATED EMISSIONS AND BAND EDGE MEASUREMENT 37

9. AC POWER LINE CONDUCTION EMISSION 50

10. ANTENNA REQUIREMENT 53

11. ADDITIONAL REQUIREMENTS 55

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Shenzhen KTC Commercial Display Technology CO.,LTD.
Address:	No.4023,Northern Wuhe Road,Bantian Street,Longgang District,Shenzhen City,Guangdong Province,P.R. China

Manufacturer Information

Company Name:	Shenzhen Horion Intelligent Technology CO., LTD
Address:	THE E DISTRICT OF THE SECOND FLOOR, 1# BUILDING, NO.4023, WUHE ROAD,GANGTOU COMMUNITY, BANTIAN, LONGGANG DISTRICT, SHENZHEN, GUANGDONG, CHINA

EUT Information

Product Description:	Transmitter & Receiver Kit
Model:	HG-P1A
Series Model:	HG-P1, HG-***(The symbol "*" can be 0-9, A-Z, "-", or blank for the marketing purpose.)
Brand:	Horion
Sample Received Date:	May 27, 2026
Sample Status:	Normal
Sample ID:	A26031209 006
Date of Tested:	May 27, 2026 to June 15, 2026

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 FCC PART 15 SUBPART E	**Pass**

Prepared By:

Jok Tang
Project Engineer

Checked By:

Alan He
Laboratory Manager

Approved By:

Alan He
Laboratory Manager

2. TEST METHODOLOGY

All tests were performed in accordance with the standard CFR 47 FCC PART 15 SUBPART E, ISED RSS-247 Issue 4, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, KDB 662911 D01 Multiple Transmitter Output v02r01, CFR 47 FCC Part 2, ANSI C63.10-2020, ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024 and ISED RSS-GEN Issue 5

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 6947.01)** Guangdong Global Testing Technology Co., Ltd. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1343)** Guangdong Global Testing Technology Co., Ltd. has been recognized to perform compliance testing on equipment subject to Supplier's Declaration of Conformity (SDoC) and Certification rules **ISED (Company No.: 30714)** Guangdong Global Testing Technology Co., Ltd. has been registered and fully described in a report filed with ISED. The Company Number is 30714 and the test lab Conformity Assessment Body Identifier (CABID) is CN0148.

Note: All tests measurement facilities use to collect the measurement data are located at Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city, Guangdong, People’s Republic of China, 523808

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Items	k	Uncertainty
Emission Bandwidth	1.96	±9.0 PPM
Conduct Output Power	1.96	± 1.12 dB
Power Spectral Density	1.96	± 2.1 dB
Conducted Spurious Emission	1.96	9 kHz-30 MHz: ± 0.95 dB 30 MHz-1 GHz: ± 1.5 dB 1GHz-12.75GHz: ± 1.8 dB 12.75 GHz-26.5 GHz: ± 2.1dB 26.5 GHz-40 GHz: ± 2.6 dB
Frequency Stability	1.96	±9.0 PPM
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.		

Test Item	Frequency Range	k	U(dB)
Conducted emissions from the AC mains power ports (AMN)	150 kHz ~ 30 MHz	2	3.37
Radiated emissions	9 kHz ~ 30 MHz	2	4.16
Radiated emissions	30 MHz ~ 1 GHz	2	3.79
Radiated emissions	1 GHz ~ 18 GHz	2	5.62
Radiated emissions	18 GHz ~ 40 GHz	2	5.54
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.			

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name		Transmitter & Receiver Kit
Model		HG-P1A
Series Model		HG-P1, HG-***(The symbol "*" can be 0-9, A-Z, "-", or blank for the marketing purpose.)
Model Difference		The difference of the models are model name, others are the same.
Hardware Version		V1.0
Software Version		V1.0
Ratings		DC 5V/1A
Power Supply	DC	5V powered by an adapter that inputs 120V/60Hz

Frequency Band:	5150 MHz to 5250 MHz (U-NII-1) 5725 MHz to 5850 MHz (U-NII-3)
Frequency Range:	5180 MHz to 5240 MHz 5745 MHz to 5825 MHz
Support Standards:	IEEE 802.11a/n
TPC Function:	Not Support
DFS Operational mode:	Not Support
Type of Modulation:	IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK, BPSK)
Channel Spacing:	IEEE 802.11a/n HT20: 20 MHz
Data Rate:	IEEE 802.11a: Up to 54 Mbps IEEE 802.11n HT20: Up to MCS7
Number of Channels:	5150 MHz to 5250 MHz: 4 for IEEE 802.11a/n HT20 5725 MHz to 5850 MHz: 5 for IEEE 802.11a/n HT20
Normal Test Voltage:	5 V
Note:	1. The Antenna Gain was provided by customer, and this information may affect the validity of the results, customer should be responsible for this.

5.2. CHANNEL LIST

UNII-1 (For Bandwidth=20MHz)	
Channel	Frequency (MHz)
36	5180
40	5200
44	5220
48	5240

UNII-3 (For Bandwidth=20MHz)	
Channel	Frequency (MHz)
149	5745
153	5765
157	5785
161	5805
165	5825

5.3. MAXIMUM EIRP

UNII-1 BAND(FCC&ISED)

IEEE Std. 802.11	Frequency (MHz)	Maximum Conducted Power (dBm)	Max EIRP (dBm)
a	5150 ~ 5250	12.79	/
n HT20		12.22	/

UNII-3 BAND(FCC&ISED)

IEEE Std. 802.11	Frequency (MHz)	Maximum Conducted Power (dBm)	Max EIRP (dBm)
a	5725 ~ 5850	14.23	/
n HT20		14.18	/

5.4. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter	
Test Software	RTL8733BU

UNII-1

Mode	Rate	Channel	Soft set value
			ANT 1
11a	6M	36	default
		40	default
		48	default
11n HT20	MCS0	36	default
		40	default
		48	default

UNII-3

Mode	Rate	Channel	Soft set value
			ANT1
11a	6M	149	default
		157	default
		165	default
11n HT20	MCS0	149	default
		157	default
		165	default

THE WORSE CASE CONFIGURATIONS

The EUT was tested in the following configuration(s):

Controlled in test mode using a software application on the EUT supplied by customer. The application was used to enable a continuous transmission and to select the mode, test channels, bandwidth, data rates as required.

Test channels referring to section 5.4.

Maximum power setting referring to section 5.4.

Worst case Data Rates declared by the customer:

802.11a 20 mode: 6 Mbps
802.11n HT20 mode: MCS0

5.5. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna No.	Frequency Band	Antenna Type	Max Antenna Gain (dBi)
1	5150-5250	PCB Antenna	2.07
1	5725-5850	PCB Antenna	2.13

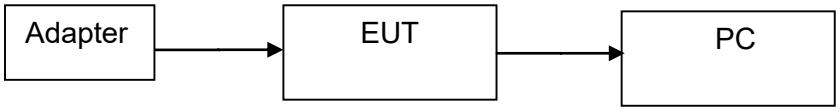
IEE Std. 802.11	Transmit and Receive Mode	Description
802.11a	☒TX, RX	ANT 1 can be used as transmitting/receiving antenna.
802.11n HT20	☒TX, RX	ANT 1 can be used as transmitting/receiving antenna.

5.6. SUPPORT UNITS FOR SYSTEM TEST

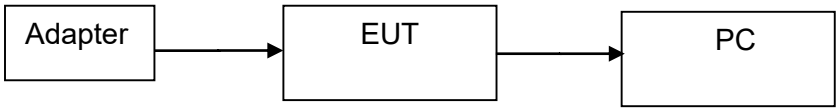
No.	Equipment	Manufacturer	Model No.	Serial No.
1	PC	Lenovo	T14	/
2	Adapter	UGREEN	CD170	/

5.7. SETUP DIAGRAM

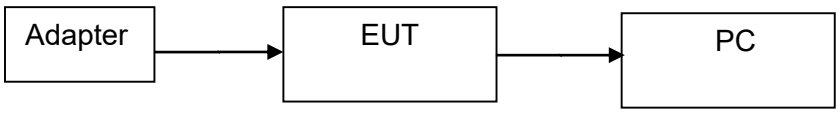
AC conducted emission:



Radiated Emission:



RF conducted:



6. MEASURING EQUIPMENT AND SOFTWARE USED

Test Equipment of Conducted RF					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Due Date**
Spectrum Analyzer	Rohde & Schwarz	FSV40	102257	2025/08/25	2026/08/24
Spectrum Analyzer	KEYSIGHT	N9020A	MY51285127	2025/08/25	2026/08/24
EXG Analog Signal Generator	KEYSIGHT	N5173B	MY61253075	2025/08/25	2026/08/24
Vector Signal Generator	Rohde & Schwarz	SMM100A	101899	2025/08/25	2026/08/24
RF Control box	MWRF-test	MW100-RFCB	MW220926GTG	2025/08/25	2026/08/24
Wideband Radio Communication Tester	Rohde & Schwarz	CMW270	102792	2025/08/25	2026/08/24
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	103235	2025/08/25	2026/08/24
temperature humidity chamber	Espec	SH-241	SH-241-2014	2025/08/25	2026/08/24
RF Test Software	MWRF-test	MTS8310E (Ver. V2/0)	N/A	N/A	N/A

Test Equipment of Radiated emissions below 1GHz					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Due Date**
3m Semi-anechoic Chamber	ETS	9m*6m*6m	Q2146	2025/08/23	2026/08/22
EMI Test Receiver	Rohde & Schwarz	ESCI3	101144	2025/08/23	2026/08/22
Pre-Amplifier	HzEMC	HPA-9K0130	HYPA21001	2025/08/23	2026/08/22
Biconilog Antenna	Schwarzbeck	VULB 9168	01315	2025/09/20	2028/09/19
Biconilog Antenna	ETS	3142E	00243651	2025/02/22	2028/02/21
Loop Antenna	ETS	6502	00243668	2025/02/22	2028/02/21
RF Cable	TIMES Microwave	LMR240UF-NMNM-14M	N/A	2025/08/23	2026/08/22
RF Cable	TIMES Microwave	HF205-NMNM-11.00M	N/A	2025/08/23	2026/08/22
RF Cable	JCT	JCT-06S-NJ-NJ-2.5M	N/A	2025/08/23	2026/08/22
Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE)	N/A	N/A	N/A

Test Equipment of Radiated emissions above 1GHz					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Due Date**
3m Semi-anechoic Chamber	ETS	9m*6m*6m	Q2149	2025/08/23	2026/08/22
Spectrum Analyzer	Rohde & Schwarz	FSV40	101413	2025/08/23	2026/08/22
Pre-Amplifier	HzEMC	HPA-1G1850	HYPA21003	2025/08/23	2026/08/22

Horn antenna	ETS	3117	00246069	2025/02/22	2028/02/21
Pre-Amplifier	HzEMC	HPA-184057	HYPA21004	2025/08/23	2026/08/22
Horn antenna	ETS	3116C	00246265	2025/02/22	2028/02/21
RF Filter Bank	HzEMC	HSW-F18	HSWF2218E01	2025/08/23	2026/08/22
RF Filter Bank	HzEMC	HPF18	HPF2218E02	2025/08/23	2026/08/22
RF Cable	TIMES Microwave	HF205-NMNM-7.00M	N/A	2025/08/23	2026/08/22
RF Cable	TIMES Microwave	HF205-NMNM-2.50M	N/A	2025/08/23	2026/08/22
Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE+)	N/A	N/A	N/A

Test Equipment of Conducted emissions					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Due Date**
Shielded Room	CHENG YU	8m*5m*4m	N/A	2025/08/23	2026/08/22
EMI Test Receiver	Rohde & Schwarz	ESR3	102647	2025/08/23	2026/08/22
LISN/AMN	Rohde & Schwarz	ENV216	102843	2025/08/23	2026/08/22
NNLK 8129 RC	Schwarzbeck	NNLK 8129 RC	5046	2025/08/23	2026/08/22
Test Software	Farad	EZ-EMC (Ver. EMC-con-3A1 1+)	N/A	N/A	N/A

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

LIMITS

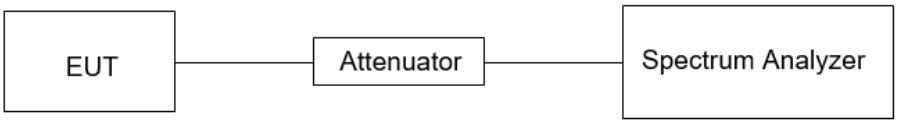
None; for reporting purposes only.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.B.

The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW ≥ EBW if possible; otherwise, set RBW to the largest available value. Set VBW ≥ RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T, where T is defined in II.B.1.a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T ≤ 16.7 microseconds.)

TEST SETUP



TEST ENVIRONMENT

Temperature	22.7℃	Relative Humidity	53%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to Appendix A

7.2. 6DB AND 26DB EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH

LIMITS

CFR 47 FCC Part15, Subpart E ISED RSS-247 ISSUE 4		
Test Item	Limit	Frequency Range (MHz)
26 dB Emission Bandwidth	For reporting purposes only.	5150 ~ 5250
26 dB Emission Bandwidth	For reporting purposes only.	5250 ~ 5350
26 dB Emission Bandwidth	For reporting purposes only.	5470 ~ 5725
6 dB Emission Bandwidth	The minimum 6 dB emission bandwidth shall be 500 kHz.	5725 ~ 5850
99 % Occupied Bandwidth	For reporting purposes only.	5150 ~ 5825 (For ISED)

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.C1. for 26 dB Emission Bandwidth; section II.C2. for 6 dB Emission Bandwidth; section II.D. for 99 % Occupied Bandwidth.
Connect the EUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Emission Bandwidth: RBW=100 kHz For 26 dB Emission bandwidth: approximately 1 % of the EBW. For 99 % Occupied Bandwidth: approximately 1 % ~ 5 % of the OBW.
VBW	For 6 dB Bandwidth: ≥ 3*RBW For 26 dB Bandwidth: >3*RBW For 99 % Bandwidth: >3*RBW
Trace	Max hold
Sweep	Auto couple

a) Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.
b) Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6/26 dB relative to the maximum level measured in the fundamental emission.

Calculation for 99 % Bandwidth of UNII-2C and UNII-3 Straddle Channel:

For Example: Fundamental Frequency: 5720 MHz

99 % OBW: 21.00 MHz

Turning Frequency: 5725 MHz

99 % Bandwidth of UNII-2C Band Portion = (5725-(5720-(21.00/2)) = 15.50 MHz

99 % Bandwidth of UNII-3 Band Portion = (5720+(21.00/2)-5725) = 5.50 MHz

Calculation for 26 dB Bandwidth of UNII-2C Straddle Channel:

For Example: Fundamental frequency: 5720 MHz

26 dB BW: 20.00 MHz

FL: 5710.16 MHz

FH: 5730.16 MHz

Turning Frequency: 5725 MHz

26 dB Bandwidth of UNII-2C Band Portion = 5725-5710.16=14.84 MHz

Calculation for 6dB Bandwidth of UNII-3 Straddle Channel:

For Example: Fundamental frequency: 5720 MHz

6 dB BW: 16.44 MHz

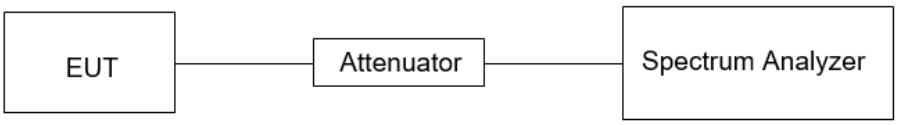
FL: 5711.76 MHz

FH: 5728.2 MHz

Turning Frequency: 5725 MHz

6 dB Bandwidth of UNII-3 band Portion = 5728.2-5725=3.2 MHz

TEST SETUP



TEST ENVIRONMENT

Temperature	22.7℃	Relative Humidity	53%
Atmosphere Pressure	100kPa		

TEST RESULTS

Please refer to Appendix A

7.3. CONDUCTED OUTPUT POWER

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	☐ Outdoor Access Point: 1 W (30 dBm) ☐ Indoor Access Point: 1 W (30 dBm) ☐ Fixed Point-To-Point Access Points: 1 W (30 dBm) ☒ Client Devices: 250 mW (24 dBm)	5150 ~ 5250
	Shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.	5250 ~ 5350 5470 ~ 5725
	Shall not exceed 1 Watt (30 dBm).	5725 ~ 5850

ISED RSS-247 ISSUE 4		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power or e.i.r.p.	The maximum e.i.r.p. shall not exceed 200 mW (23 dBm) or 10 + 10 $\log_{10}$B, dBm, whichever power is less. B is the 99 % emission bandwidth in megahertz.	5150 ~ 5250
	a. The maximum conducted output power shall not exceed 250 mW (24 dBm) or 11 + 10 $\log_{10}$B dBm, whichever is less. b. The maximum e.i.r.p. shall not exceed 1.0 W (30 dBm) or 17 + 10 $\log_{10}$B dBm, whichever is less. B is the 99 % emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.	5250 ~ 5350 5470 ~ 5725
	Shall not exceed 1 Watt (30 dBm). The e.i.r.p. shall not exceed 4 W	5725 ~ 5850

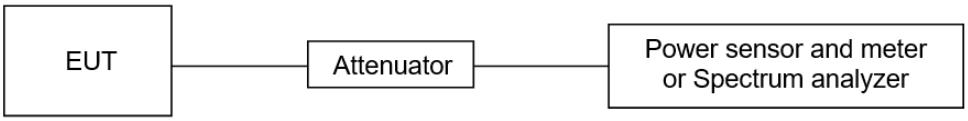
Note:
The above limits are based upon the maximum antenna gain does not exceed 6 dBi.
If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.E.

Method PM-G (Measurement using a gated RF average power meter):
Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

TEST SETUP



TEST ENVIRONMENT

Temperature	22.7℃	Relative Humidity	53%
Atmosphere Pressure	100kPa		

TEST RESULTS

Please refer to Appendix A

7.4. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	☐ Outdoor Access Point: 17 dBm/MHz ☐ Indoor Access Point: 17 dBm/MHz ☐ Fixed Point-To-Point Access Points: 17 dBm/MHz ☒ Client Devices: 11 dBm/MHz	5150 ~ 5250
	11 dBm/MHz	5250 ~ 5350 5470 ~ 5725
	30 dBm/500kHz	5725 ~ 5850

ISED RSS-247 ISSUE 4		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.	5150 ~ 5250
	The power spectral density shall not exceed 11 dBm inany 1.0 MHz band.	5250 ~ 5350 5470 ~ 5725
	30 dBm / 500 kHz	5725 ~ 5850

Note:
The above limits are based upon the maximum antenna gain does not exceed 6 dBi.
If transmitting antennas of directional gain greater than 6 dBi are used, maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.F.

Connect the EUT to the spectrum analyzer and use the following settings:

For U-NII-1, U-NII-2A and U-NII-2C band:

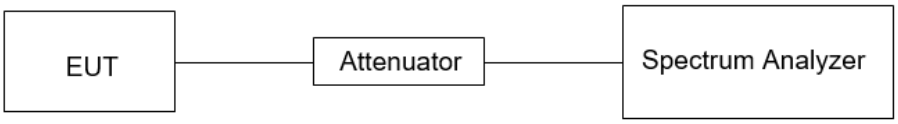
Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	1 MHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

For U-NII-3:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow trace to fully stabilize and use the peak search function on the instrument to find the peak of the spectrum and record its value.
Add 10 log (1/x), where x is the duty cycle, to the peak of the spectrum, the result is the Maximum PSD over 1 MHz / 500 kHz reference bandwidth.

TEST SETUP



TEST ENVIRONMENT

Temperature	22.7℃	Relative Humidity	53%
Atmosphere Pressure	100kPa		

TEST RESULTS

Please refer to Appendix A

7.5. FREQUENCY STABILITY

LIMITS

The frequency of the carrier signal shall be maintained within band of operation.

TEST PROCEDURE

1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between 0 °C ~ 40 °C (declared by customer).

2. The temperature was incremented by 10 °C intervals and the unit allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.

3. The primary supply voltage is varied from 85 % to 115 % of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

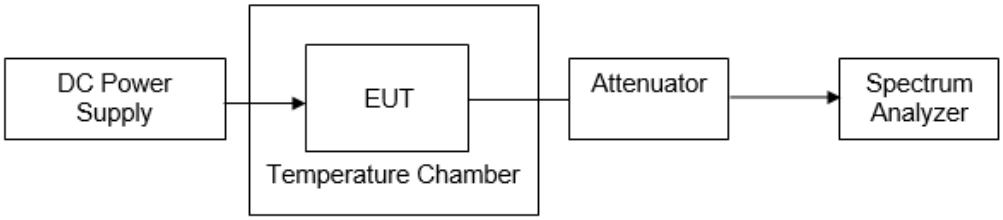
Connect the EUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	10 kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

4. While maintaining a constant temperature inside the environmental chamber, turn the EUT on and record the operating frequency at startup, and at 2 minutes, 5minutes, and 10 minutes after the EUT is energized.

5. Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

TEST SETUP



TEST ENVIRONMENT

Temperature	25℃	Relative Humidity	53%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to Appendix A

7.6. DYNAMIC FREQUENCY SELECTION (SLAVE)

LIMITS

(1) DFS Detection Thresholds

Table 3: DFS Detection Thresholds for Master Devices and Client Devices With Radar Detection

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

(2) DFS Response Requirements

Table 4: DFS Response Requirement Values

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required facilitating a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

APPLICABILITY OF DFS REQUIREMENTS

A U-NII network will employ a DFS function to detect signals from radar systems and to avoid co-channel operation with these systems. This applies to the 5250-5350 MHz and/or 5470-5725 MHz bands.
Within the context of the operation of the DFS function, a U-NII device will operate in either Master Mode or Client Mode. U-NII devices operating in Client Mode can only operate in a network controlled by a U-NII device operating in Master Mode.

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	☐ Master	☒ Client Without Radar Detection	☐ Client With Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	☐ Master Device or Client with Radar Detection	☒ Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	☐ Master Device or Client with Radar Detection	☒ Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

PARAMETERS OF RADAR TEST WAVEFORMS

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

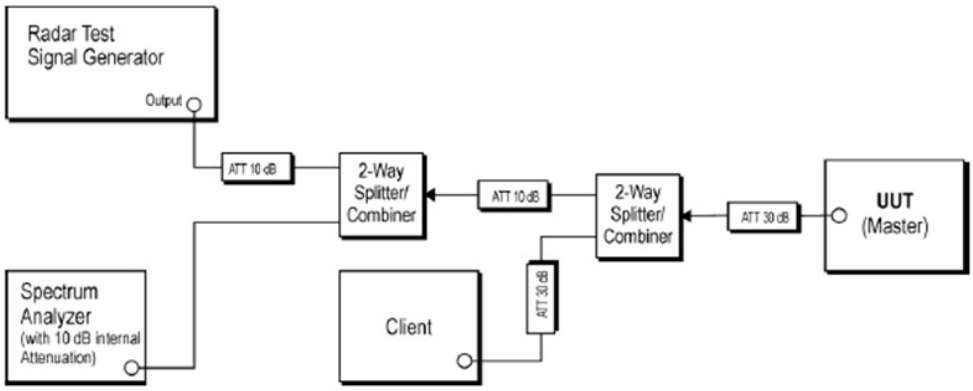
Table 5 Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{\text{PRI}_{\mu sec}}\right)\right\}$	60%	30
		Test B			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.
Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a
Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B. Test aggregate is average of the percentage of successful detections of short pulse radar types 1-4.

TEST SETUP



TEST ENVIRONMENT

Temperature	/°C	Relative Humidity	/%
Atmosphere Pressure	/kPa		

TEST RESULTS

N/A

7.7. DYNAMIC FREQUENCY SELECTION (MASTER)

LIMITS

(3) DFS Detection Thresholds

Table 3: DFS Detection Thresholds for Master Devices and Client Devices With Radar Detection

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

(4) DFS Response Requirements

Table 4: DFS Response Requirement Values

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required facilitating a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

APPLICABILITY OF DFS REQUIREMENTS

A U-NII network will employ a DFS function to detect signals from radar systems and to avoid co-channel operation with these systems. This applies to the 5250-5350 MHz and/or 5470-5725 MHz bands.
Within the context of the operation of the DFS function, a U-NII device will operate in either Master Mode or Client Mode. U-NII devices operating in Client Mode can only operate in a network controlled by a U-NII device operating in Master Mode.

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	☒ Master	☐ Client Without Radar Detection	☐ Client With Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	☒ Master Device or Client with Radar Detection	☐ Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	☒ Master Device or Client with Radar Detection	☐ Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

PARAMETERS OF RADAR TEST WAVEFORMS

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

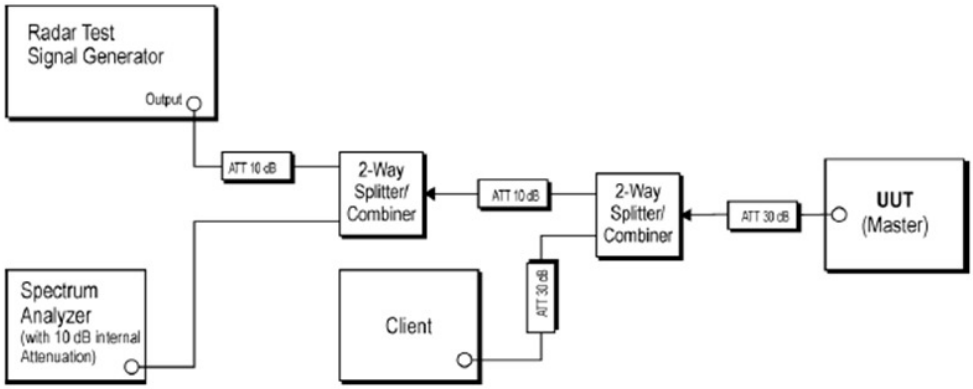
Table 5 Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{\text{PRI}_{\mu sec}}\right)\right\}$	60%	30
		Test B			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.
Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a
Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B. Test aggregate is average of the percentage of successful detections of short pulse radar types 1-4.

TEST SETUP



TEST ENVIRONMENT

Temperature	/°C	Relative Humidity	/%
Atmosphere Pressure	/kPa		

TEST RESULTS

N/A

8. RADIATED TEST RESULTS

LIMITS

Refer to CFR 47 FCC §15.205, §15.209 and §15.407 (b).

Refer to ISED RSS-GEN Clause 8.9, Clause 8.10 and ISED RSS-247 7.3.

Radiation Disturbance Test Limit for FCC (Class B) (9 kHz ~ 1 GHz)

Emissions radiated outside of the specified frequency bands above 30 MHz			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

FCC Emissions radiated outside of the specified frequency bands below 30 MHz		
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30

ISED General field strength limits at frequencies below 30 MHz

Table 6 – General field strength limits at frequencies below 30 MHz

Frequency	Magnetic field strength (H-Field) (µA/m)	Measurement distance (m)
9 - 490 kHz[Note 1]	6.37/F (F in kHz)	300
490 - 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

ISED Restricted bands refer to ISED RSS-GEN Clause 8.10

Table 7 – Restricted frequency bands[Note 1]		
MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 – 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 – 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 – 8500	
108 – 138		

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

FCC Restricted bands of operation refer to FCC §15.205 (a):

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

Note: [1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2]Above 38.6c

Limits of unwanted/undesirable emission out of the restricted bands refer to CFR 47 FCC §15.407 (b) and ISED RSS-247 7.3.

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)		
Frequency Range (MHz)	EIRP Limit	Field Strength Limit (dBuV/m) at 3 m
5150~5250 MHz	PK: -27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz		
5470~5725 MHz		
5725~5850 MHz	PK: -27 (dBm/MHz) *1 PK: 10 (dBm/MHz) *2 PK: 15.6 (dBm/MHz) *3 PK: 27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK: 105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK: 122.2 (dBμV/m) *4
Note: *1 beyond 75 MHz or more above of the band edge. *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

TEST PROCEDURE

Below 30 MHz

The setting of the spectrum analyzer

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto

1. The testing follows the guidelines in ANSI C63.10-2020 clause 6.4.

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made

to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω. For example, the measurement frequency X KHz resulted in a level of Y dBuV/m, which is equivalent to Y-51.5 = Z dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

Below 1 GHz and above 30 MHz

The setting of the spectrum analyzer

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2020 clause 6.5.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

Above 1 GHz

The setting of the spectrum analyzer

RBW	1 MHz
VBW	PEAK: 3 MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.G.3 ~ II.G.6.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

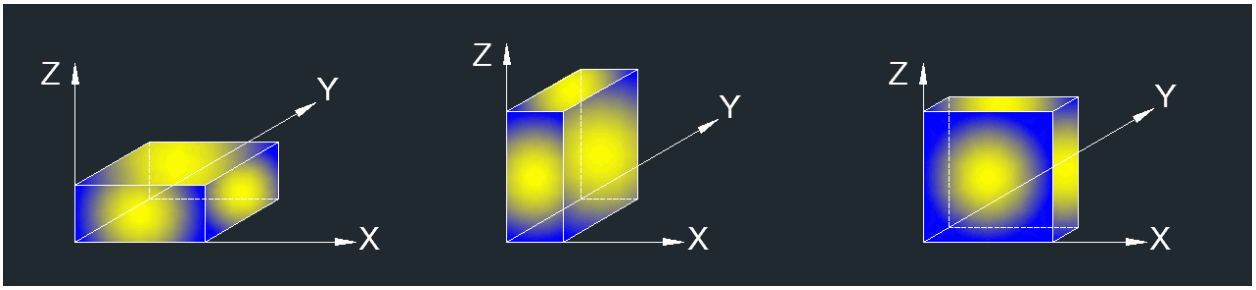
3. The EUT was placed on a turntable with 1.5 m above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

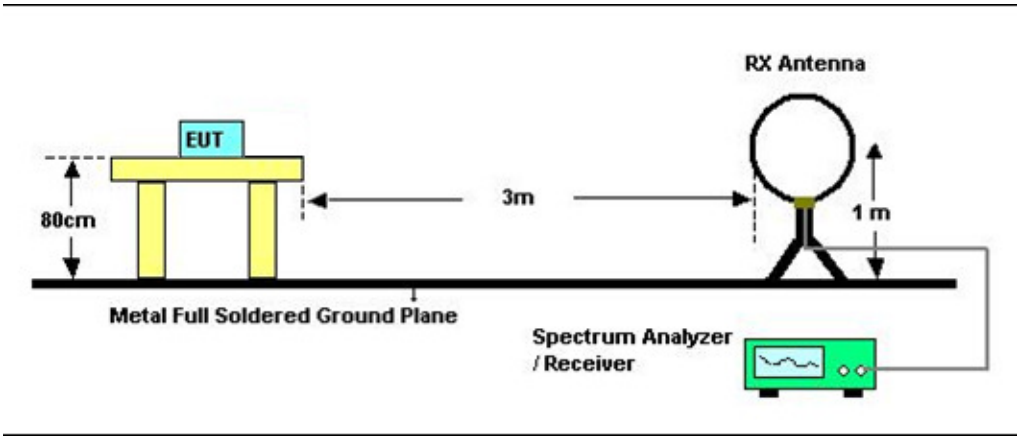
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1. ON TIME AND DUTY CYCLE.

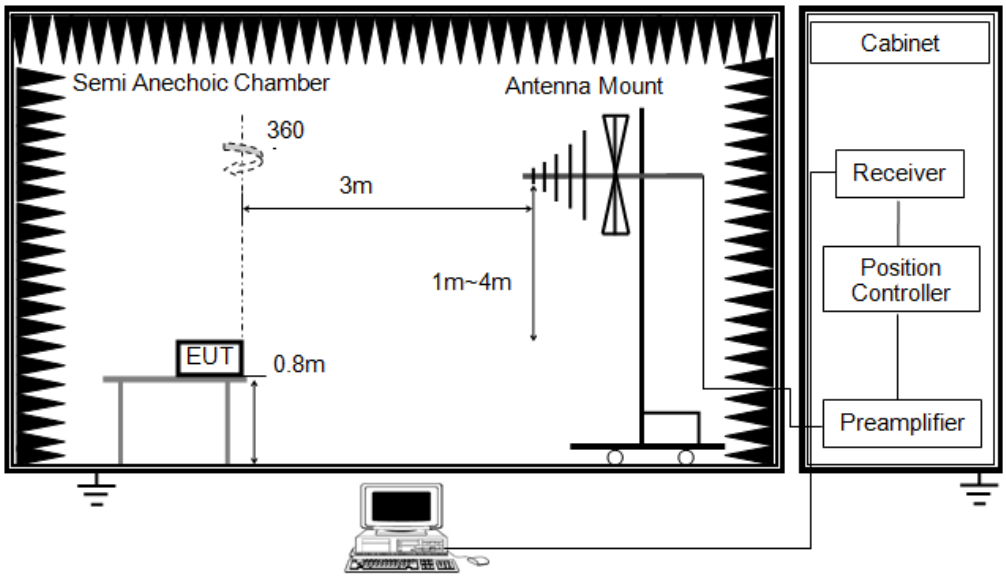
X axis, Y axis, Z axis positions:

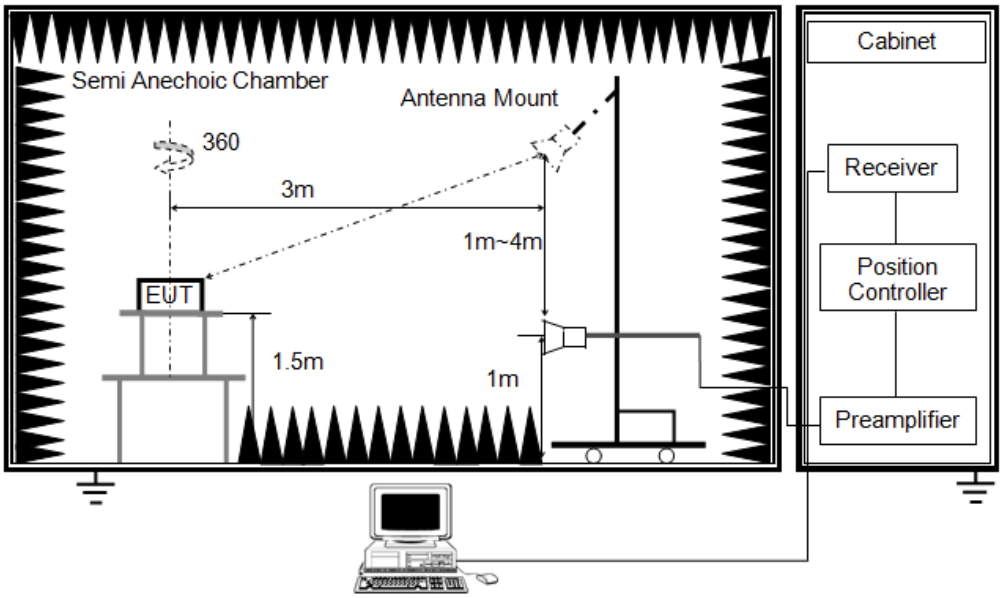


Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

TEST SETUP







TEST ENVIRONMENT

Temperature	23.7℃	Relative Humidity	54%
Atmosphere Pressure	101kPa		

TEST RESULTS

8.1. RADIATED EMISSIONS AND BAND EDGE MEASUREMENT

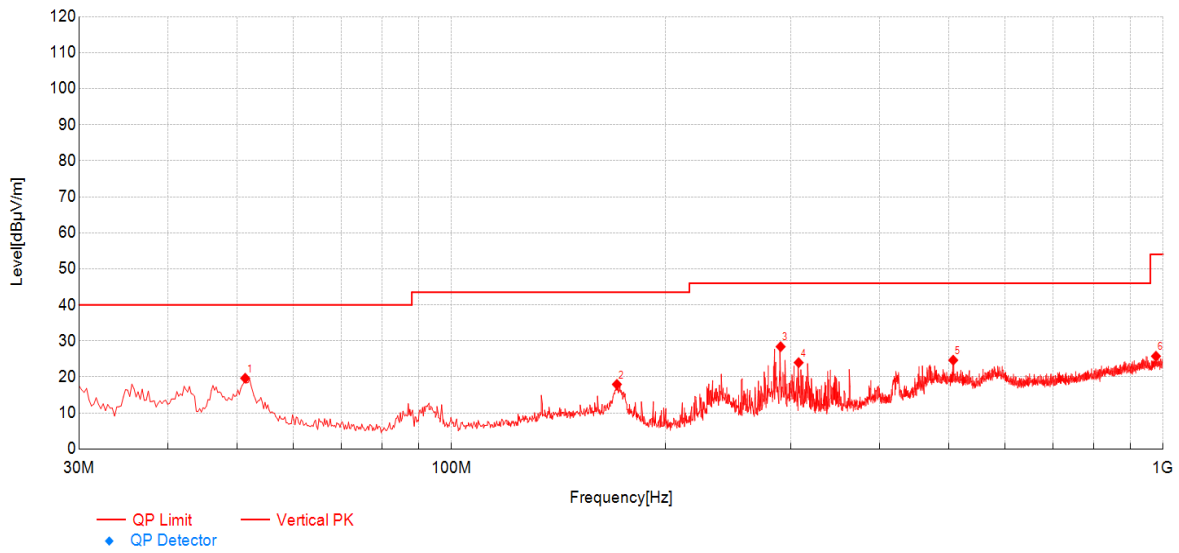
Undesirable radiated Spurious Emission below 1GHz (30MHz to 1GHz)

All modes have been tested and the worst result as bellow:

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5825
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



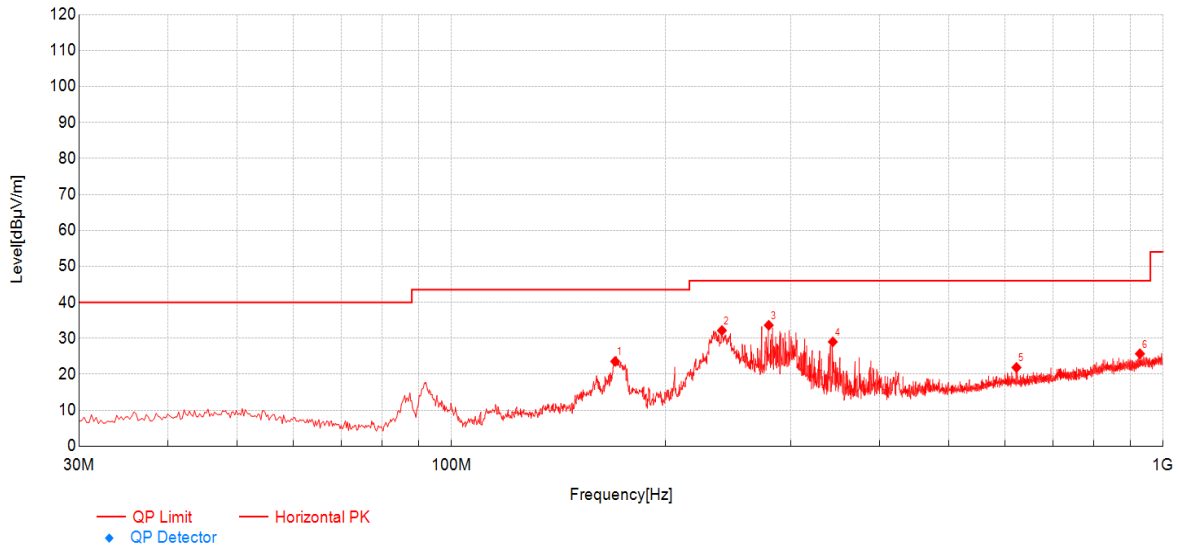
Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	51.34	38.33	19.65	-18.68	40.00	20.35	PK	Vertical	PASS
2	170.89	37.36	17.95	-19.41	43.50	25.55	PK	Vertical	PASS
3	290.20	47.54	28.41	-19.13	46.00	17.59	PK	Vertical	PASS
4	307.66	42.33	23.98	-18.35	46.00	22.02	PK	Vertical	PASS
5	507.24	37.60	24.66	-12.94	46.00	21.34	PK	Vertical	PASS
6	977.45	29.83	25.75	-4.08	54.00	28.25	PK	Vertical	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5825
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



Suspected Data List

NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	169.92	42.79	23.58	-19.21	43.50	19.92	PK	Horizontal	PASS
2	240.01	52.70	32.16	-20.54	46.00	13.84	PK	Horizontal	PASS
3	279.29	53.13	33.63	-19.50	46.00	12.37	PK	Horizontal	PASS
4	343.55	46.44	29.02	-17.42	46.00	16.98	PK	Horizontal	PASS
5	622.43	32.40	21.88	-10.52	46.00	24.12	PK	Horizontal	PASS
6	927.98	30.49	25.71	-4.78	46.00	20.29	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

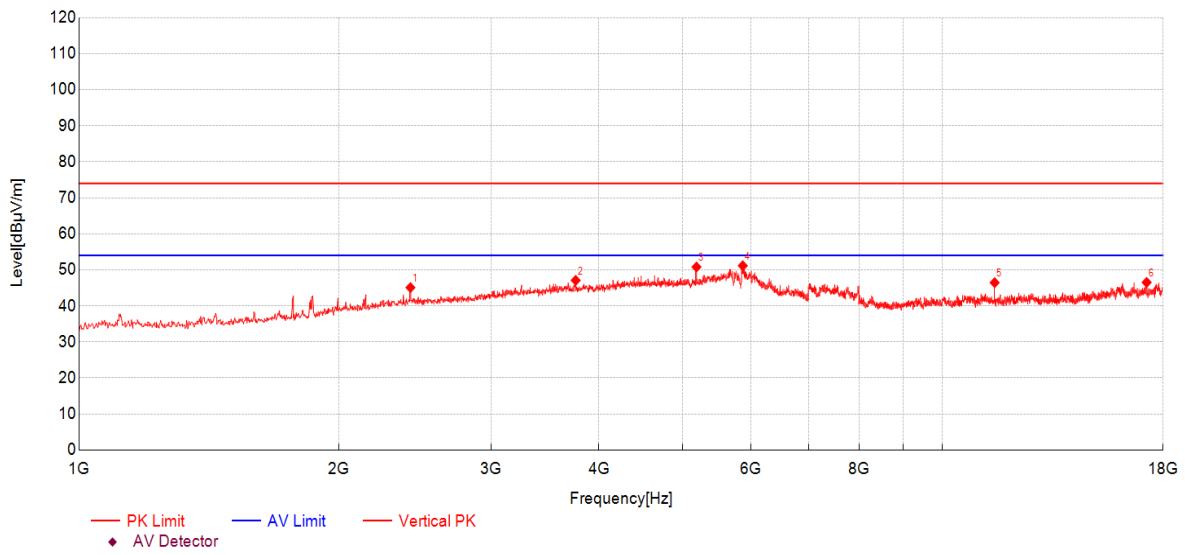
Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

All modes have been tested and the worst result as bellow:

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5745
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



Suspected Data List

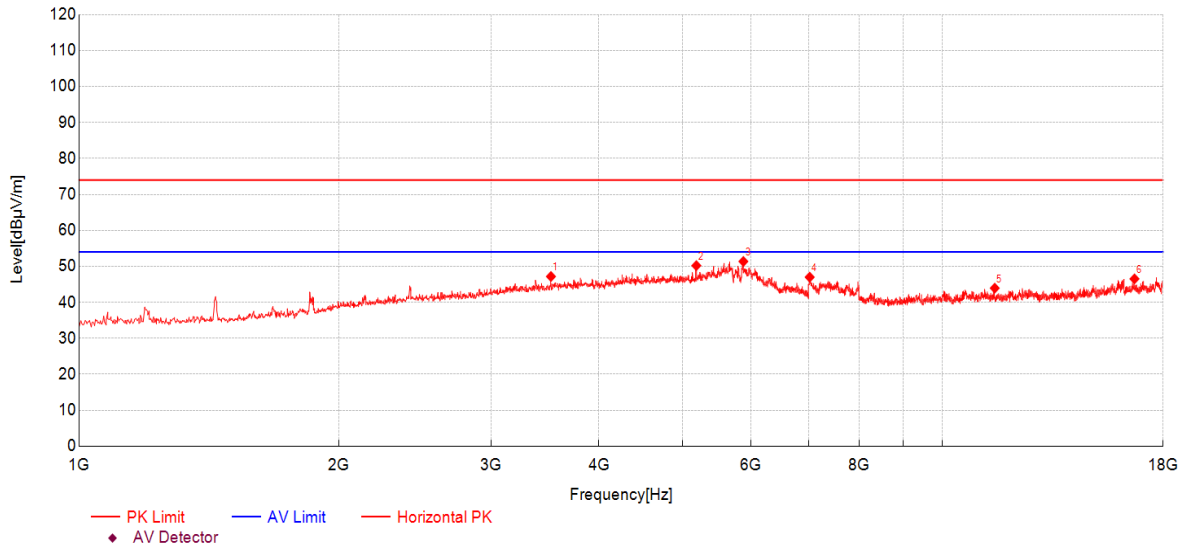
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	2419.14	53.84	45.09	-8.75	74.00	28.91	PK	Vertical	PASS
2	3758.92	51.96	47.09	-4.87	74.00	26.91	PK	Vertical	PASS
3	5187.40	53.33	50.80	-2.53	74.00	23.20	PK	Vertical	PASS
4	5868.96	50.94	51.15	0.21	74.00	22.85	PK	Vertical	PASS
5	11487.83	50.96	46.45	-4.51	74.00	27.55	PK	Vertical	PASS
6	17229.74	47.81	46.53	-1.28	74.00	27.47	PK	Vertical	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5745
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



Suspected Data List

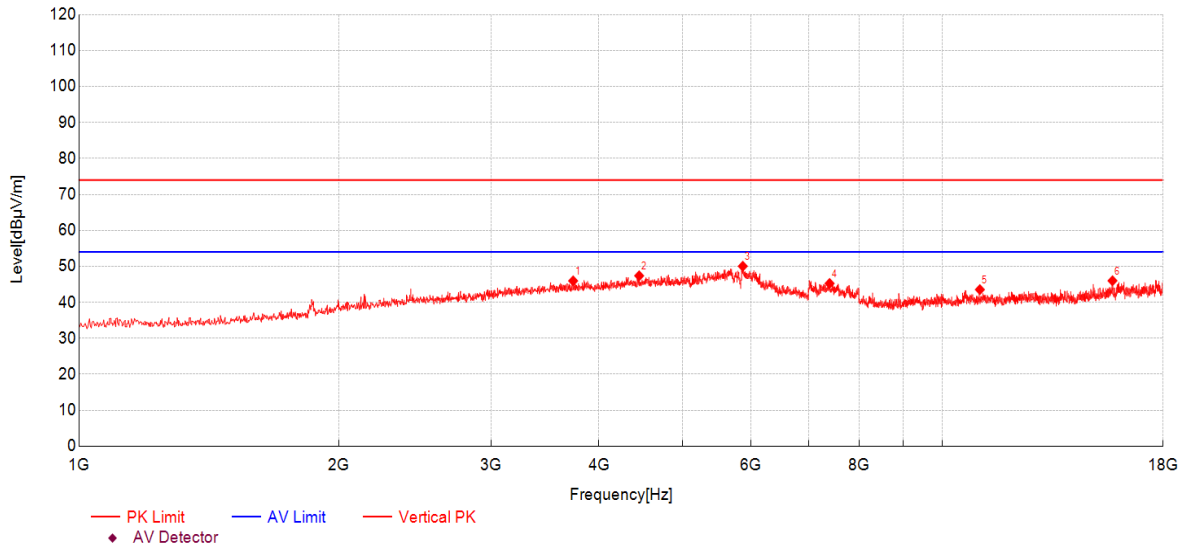
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	3518.51	52.25	47.18	-5.07	74.00	26.82	PK	Horizontal	PASS
2	5185.06	52.72	50.21	-2.51	74.00	23.79	PK	Horizontal	PASS
3	5878.29	51.65	51.37	-0.28	74.00	22.63	PK	Horizontal	PASS
4	7015.01	46.33	46.99	0.66	74.00	27.01	PK	Horizontal	PASS
5	11491.16	48.46	43.94	-4.52	74.00	30.06	PK	Horizontal	PASS
6	16679.56	47.87	46.52	-1.35	74.00	27.48	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5785
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



Suspected Data List

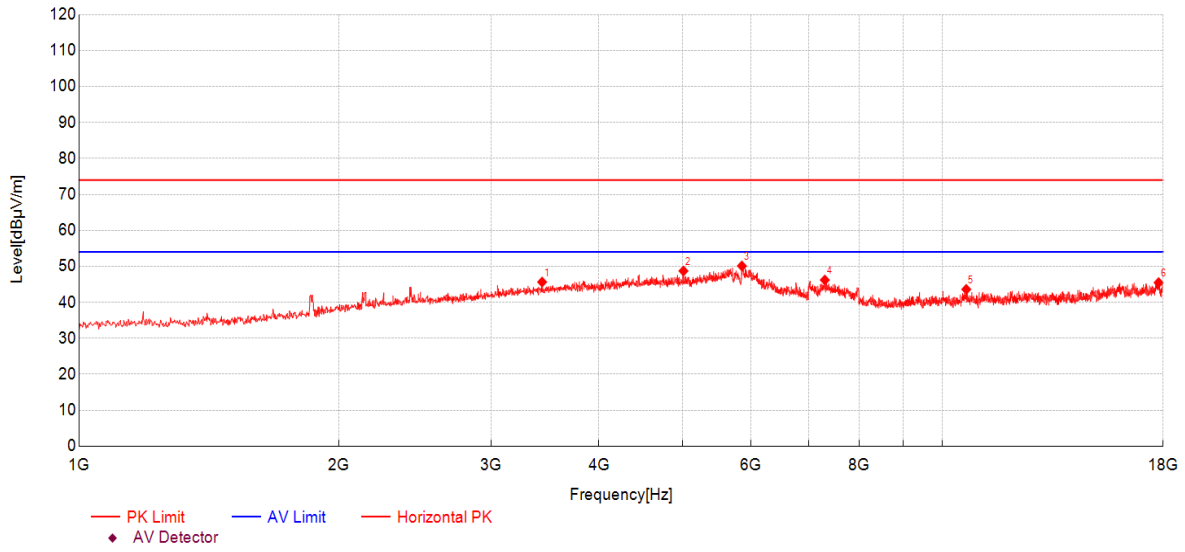
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	3733.24	50.73	45.96	-4.77	74.00	28.04	PK	Vertical	PASS
2	4452.15	51.33	47.38	-3.95	74.00	26.62	PK	Vertical	PASS
3	5868.96	49.83	50.04	0.21	74.00	23.96	PK	Vertical	PASS
4	7397.80	43.89	45.25	1.36	74.00	28.75	PK	Vertical	PASS
5	11044.35	48.40	43.53	-4.87	74.00	30.47	PK	Vertical	PASS
6	15729.24	48.28	46.00	-2.28	74.00	28.00	PK	Vertical	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5785
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



Suspected Data List

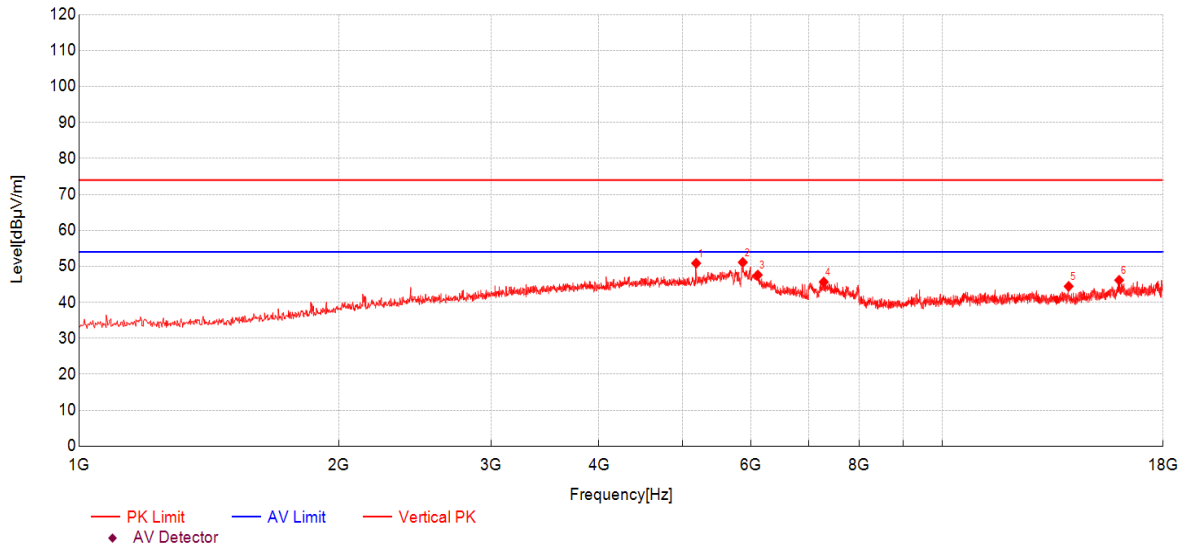
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	3436.81	50.79	45.64	-5.15	74.00	28.36	PK	Horizontal	PASS
2	5010.00	51.07	48.72	-2.35	74.00	25.28	PK	Horizontal	PASS
3	5854.95	50.59	50.11	-0.48	74.00	23.89	PK	Horizontal	PASS
4	7304.43	44.67	46.20	1.53	74.00	27.80	PK	Horizontal	PASS
5	10650.88	47.99	43.60	-4.39	74.00	30.40	PK	Horizontal	PASS
6	17789.93	45.40	45.48	0.08	74.00	28.52	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5825
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



Suspected Data List

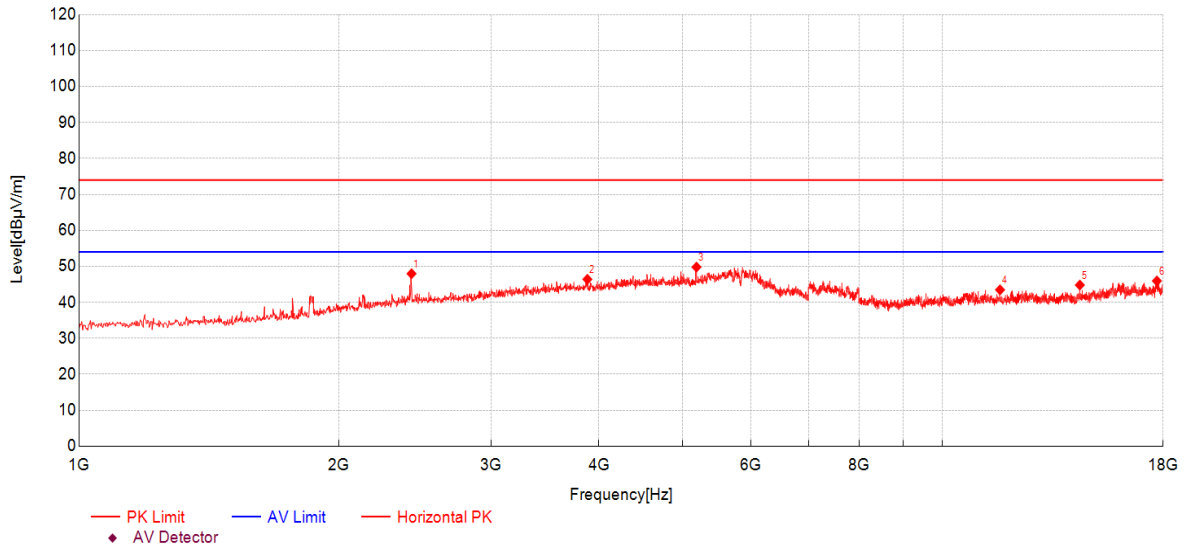
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	5182.73	53.36	50.86	-2.50	74.00	23.14	PK	Vertical	PASS
2	5868.96	50.90	51.11	0.21	74.00	22.89	PK	Vertical	PASS
3	6109.37	48.89	47.61	-1.28	74.00	26.39	PK	Vertical	PASS
4	7283.43	43.91	45.67	1.76	74.00	28.33	PK	Vertical	PASS
5	13995.33	48.05	44.44	-3.61	74.00	29.56	PK	Vertical	PASS
6	16012.67	47.86	46.14	-1.72	74.00	27.86	PK	Vertical	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5825
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



Suspected Data List

NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	2426.14	56.84	47.96	-8.88	74.00	26.04	PK	Horizontal	PASS
2	3877.96	50.59	46.41	-4.18	74.00	27.59	PK	Horizontal	PASS
3	5187.40	52.33	49.80	-2.53	74.00	24.20	PK	Horizontal	PASS
4	11654.55	48.26	43.48	-4.78	74.00	30.52	PK	Horizontal	PASS
5	14418.81	48.53	44.80	-3.73	74.00	29.20	PK	Horizontal	PASS
6	17706.57	46.44	45.95	-0.49	74.00	28.05	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

For 9KHz to 30MHz and above 18 GHz, a pre-scan was performed, and the result was 20 dB lower than the limit line, the test data was not shown in the report.

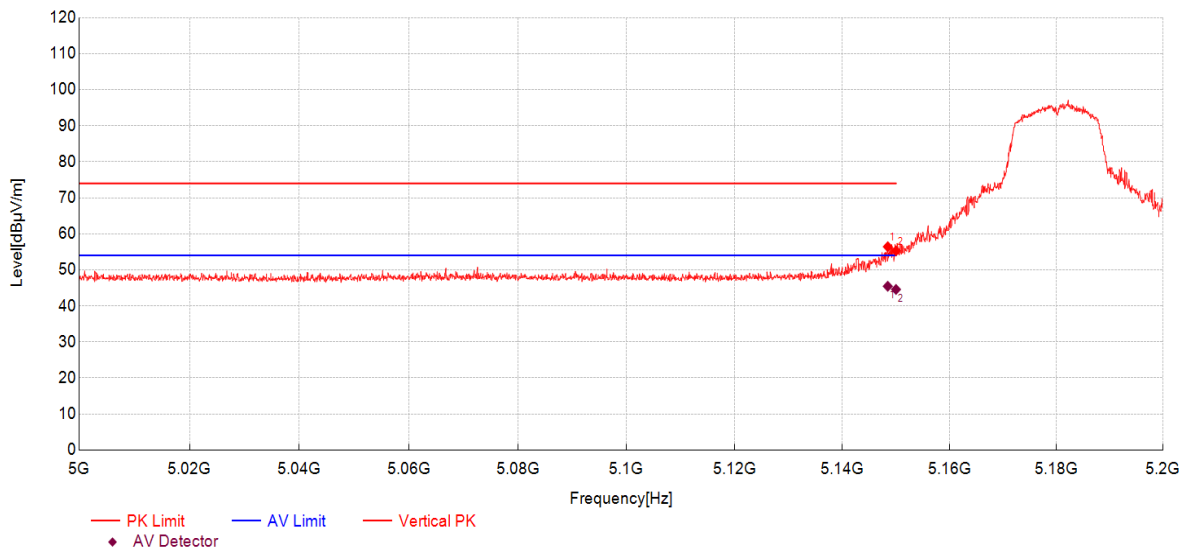
Band Edge

All modes have been tested and the worst result as bellow:

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5180
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	5148.47	27.95	56.42	28.47	74.00	17.58	PK	Vertical	PASS
2	5150.00	26.82	55.27	28.45	74.00	18.73	PK	Vertical	PASS

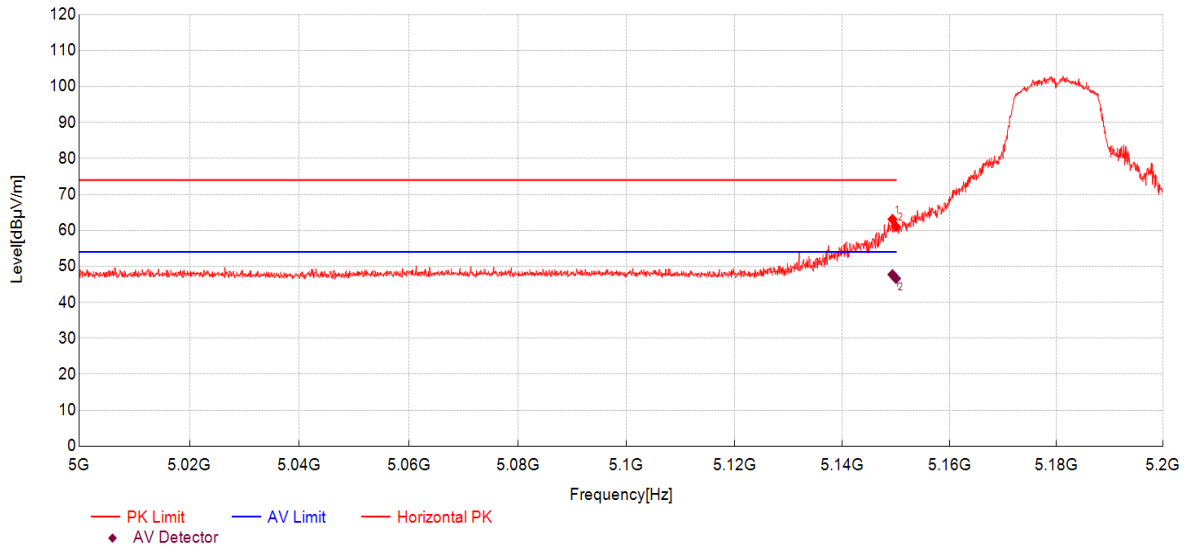
Final Data List								
NO.	Frequency [MHz]	Factor [dB/m]	AV Reading [dBµV/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Pol	Verdict
1	5148.47	28.47	16.98	45.45	54.00	8.55	Vertical	PASS
2	5150.00	28.45	16.12	44.57	54.00	9.43	Vertical	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5180
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	5149.33	34.62	63.08	28.46	74.00	10.92	PK	Horizontal	PASS
2	5150.00	32.60	61.05	28.45	74.00	12.95	PK	Horizontal	PASS

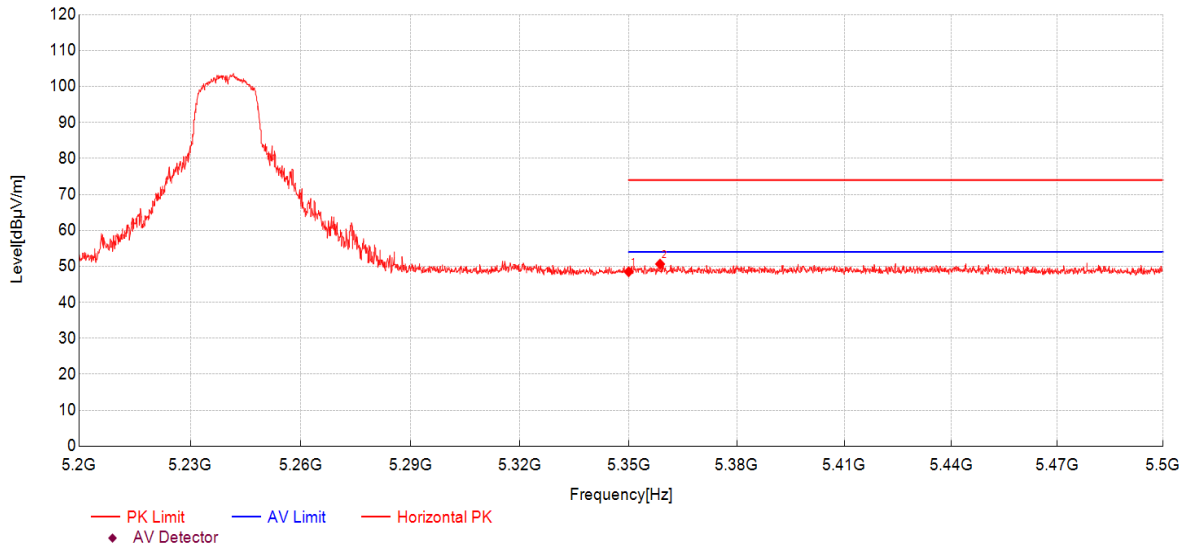
Final Data List								
NO.	Frequency [MHz]	Factor [dB/m]	AV Reading [dBµV/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Pol	Verdict
1	5149.33	28.46	19.26	47.72	54.00	6.28	Horizontal	PASS
2	5150.00	28.45	18.14	46.59	54.00	7.41	Horizontal	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5240
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



Suspected Data List

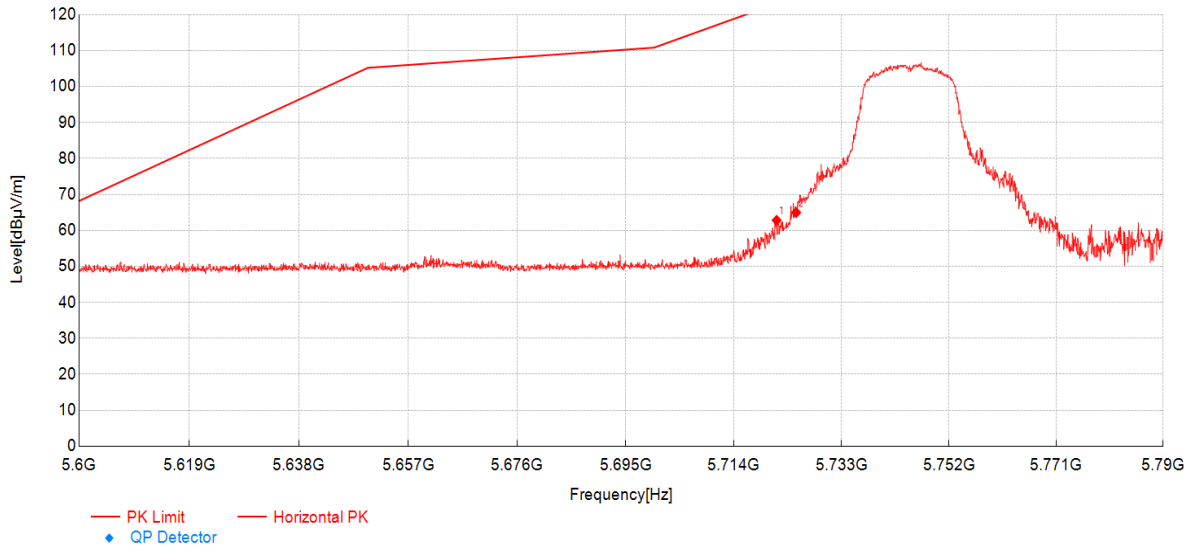
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	5350.00	19.51	48.50	28.99	74.00	25.50	PK	Horizontal	PASS
2	5358.70	21.47	50.65	29.18	74.00	23.35	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5745
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



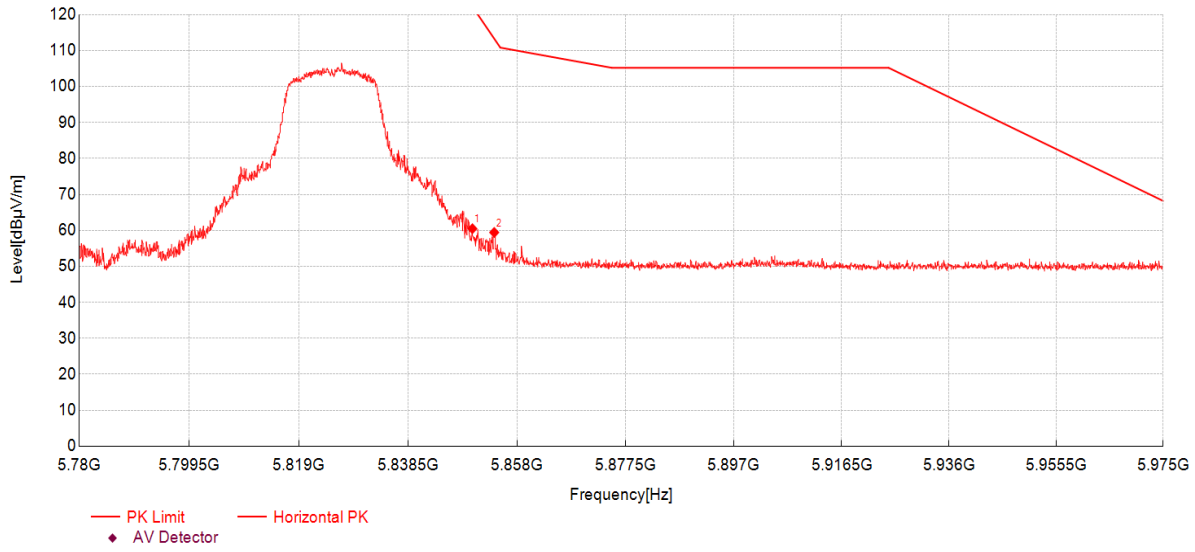
Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	5721.54	33.55	62.81	29.26	122.20	59.39	PK	Horizontal	PASS
2	5725.00	35.73	64.96	29.23	122.20	57.24	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

TX Radiated Test Result

Project Information			
Test Mode	802.11a	Channel	5825
Environment	Temp: 23.7℃; Humi:54%	Test Date	2026-06-16
Note	/	Engineer	Berny

Test Graph



Suspected Data List

NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Det	Pol	Verdict
1	5850.00	31.15	60.47	29.32	122.20	61.73	PK	Horizontal	PASS
2	5853.91	30.08	59.43	29.35	113.30	53.87	PK	Horizontal	PASS

Note:(1)Level=Reading+Factor
(2)Margin=Limit-Level

9. AC POWER LINE CONDUCTION EMISSION

LIMITS

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

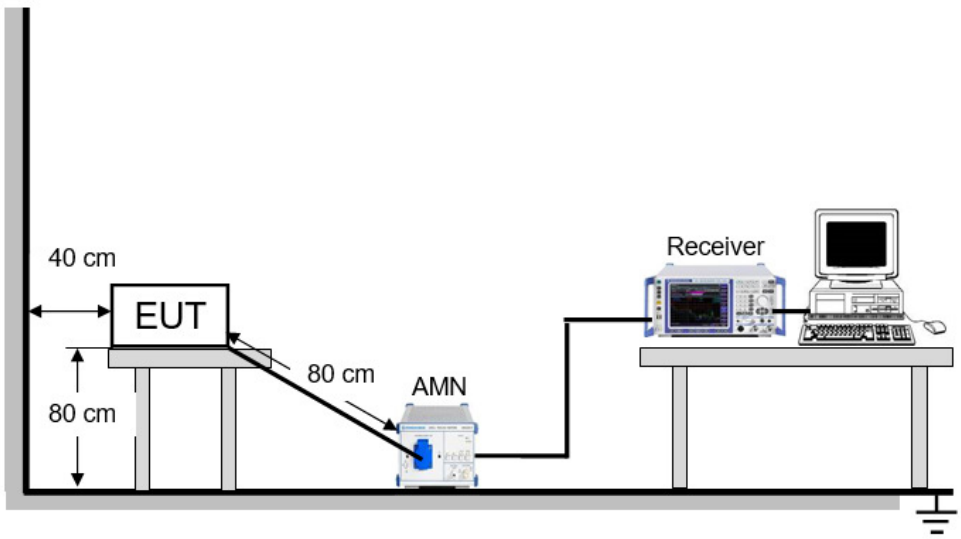
*Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2020.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

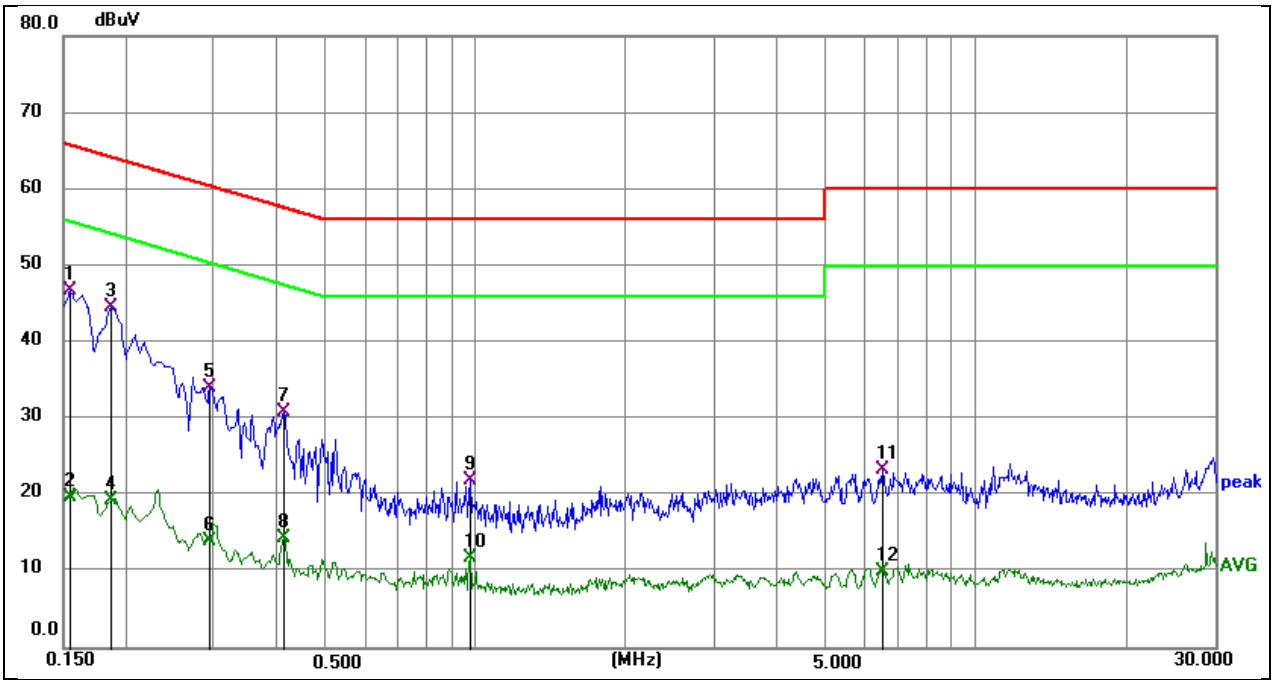
TEST SETUP



TEST ENVIRONMENT

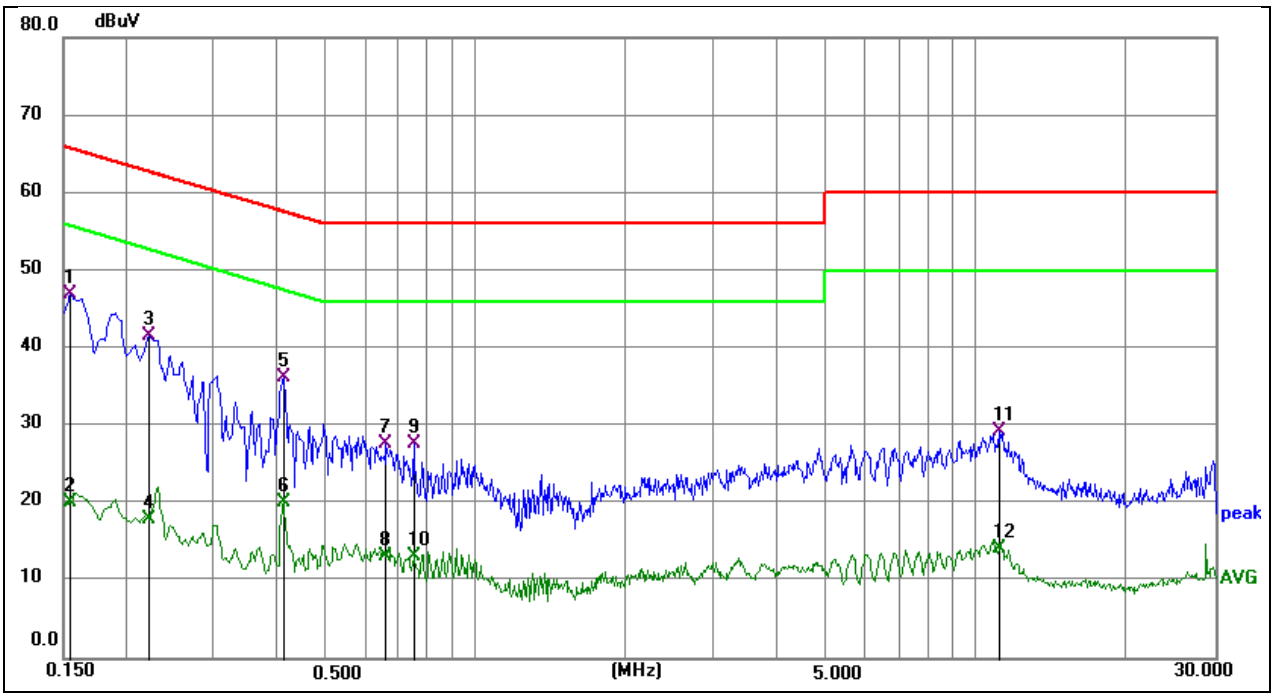
Temperature	23.4℃	Relative Humidity	54%
Atmosphere Pressure	101kPa		

TEST RESULTS



Phase: N	Mode: 802.11a 5825MHz

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1544	37.16	9.57	46.73	65.76	-19.03	QP
2	0.1544	10.27	9.57	19.84	55.76	-35.92	AVG
3	0.1860	34.98	9.59	44.57	64.21	-19.64	QP
4	0.1860	9.81	9.59	19.40	54.21	-34.81	AVG
5	0.2940	24.57	9.53	34.10	60.41	-26.31	QP
6	0.2940	4.55	9.53	14.08	50.41	-36.33	AVG
7	0.4110	21.23	9.54	30.77	57.63	-26.86	QP
8	0.4110	4.82	9.54	14.36	47.63	-33.27	AVG
9	0.9780	12.33	9.60	21.93	56.00	-34.07	QP
10	0.9780	2.14	9.60	11.74	46.00	-34.26	AVG
11	6.4950	13.56	9.68	23.24	60.00	-36.76	QP
12	6.4950	0.33	9.68	10.01	50.00	-39.99	AVG



Phase: L1	Mode: 802.11a 5825MHz

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1544	37.31	9.54	46.85	65.76	-18.91	QP
2	0.1544	10.59	9.54	20.13	55.76	-35.63	AVG
3	0.2220	32.09	9.55	41.64	62.74	-21.10	QP
4	0.2220	8.49	9.55	18.04	52.74	-34.70	AVG
5	0.4110	26.74	9.48	36.22	57.63	-21.41	QP
6	0.4110	10.60	9.48	20.08	47.63	-27.55	AVG
7	0.6630	18.12	9.61	27.73	56.00	-28.27	QP
8	0.6630	3.60	9.61	13.21	46.00	-32.79	AVG
9	0.7530	18.09	9.56	27.65	56.00	-28.35	QP
10	0.7530	3.61	9.56	13.17	46.00	-32.83	AVG
11	11.1344	19.52	9.74	29.26	60.00	-30.74	QP
12	11.1344	4.51	9.74	14.25	50.00	-35.75	AVG

10. ANTENNA REQUIREMENT

REQUIREMENT

Please refer to FCC §15.203
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.407(a)
For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Standard	Requirement
RSS-Gen issue 5 6.8.	The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list. For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below). When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer. The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested. For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location: This radio transmitter [enter the device's ISED certification number] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

	Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

DESCRIPTION

Pass

11. ADDITIONAL REQUIREMENTS

REQUIREMENT

The following requirements shall apply:

a. the device shall automatically discontinue transmission in cases of absence of information to transmit, or operational failure. A description on how this is done shall accompany the application for equipment certification. Note that this is not intended to prohibit transmission of control or signalling information or the use of repetitive codes where required by the technology.

b. all LE-LAN devices must contain security features to protect against modification of software by unauthorized parties.

   Manufacturers must implement security features in any digitally modulated devices capable of operating in any of the frequency ranges within the 5 GHz band, so that third parties are not able to reprogram the device to operate outside the parameters for which the device was certified. The software must prevent the user from operating the transmitter with operating frequencies, output power, modulation types or other radio frequency parameters outside those that were approved for the device. Manufacturers may use various means, including the use of a private network that allows only authenticated users to download software, electronic signatures in software or coding in hardware that is decoded by software to verify that new software can be legally loaded into a device to meet these requirements and must describe the methods in their application for equipment certification.

   Manufacturers must take steps to ensure that DFS functionality cannot be disabled by the operator of the LE-LAN device.

c. the user manual for LE-LAN devices shall contain instructions related to the restrictions mentioned in the above sections, namely that:

   i. any devices capable of operating in the band 5150–5250 MHz shall only be used indoors to reduce the potential for harmful interference to co-channel mobile satellite systems (this requirement does not apply to OEM devices installed in vehicles by vehicle manufacturers);

   ii. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;

   iii. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate; and

   iv. where applicable, antenna type(s), antenna models(s), and worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in section 7.3.2.4 or 7.3.5.3 shall be clearly indicated.

DESCRIPTION

Pass

Note:
The following judgment comes from the manufacturer:
a) Automatic discontinuation of transmission.
We hereby certify that, pursuant to FCC Part 15.407(c) and RSS-247 Issue 4 Clause 7.3.7, the device is designed to automatically terminate RF transmission in the absence of payload data or upon the occurrence of an operational fault.

b) Security features to protect against modification of software by unauthorized parties.
We hereby certify that, pursuant to FCC Part 15.407(c) and RSS-247 Issue 4 Clause 7.3.7, the device incorporates effective security safeguards to preclude unauthorized software alteration. These measures ensure that third parties are unable to reconfigure the device to operate beyond the scope of its certified operational limits.

END OF REPORT